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Signature

August 28, 2006
Date of Signature

PATENT
Case No.: AUS920000805US1
(9000/14)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re patent application of:	)	
	)	
FRANCK BARILLAUD, ET AL.	)	Examiner: CHEA, PHILIP J.
	)	
Serial No.: 09/738,371	)	
	)	Group Art Unit: 2153
Filing Date: DECEMBER 15, 2000	)	
	)	
For: METHOD AND SYSTEM FOR OPTIMALLY ALLOCATING A NETWORK SERVICE	)	

REVISED APPEAL BRIEF

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22202-1450

Dear Sir:

Appellants respectfully present their Brief on Appeal as follows:

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1. REAL PARTY IN INTEREST

The real party in interest is assignee INTERNATIONAL BUSINESS MACHINES CORPORATION, a corporation organized and existing under the laws of the State of New York, USA and located at New Orchard Road, Armonk, New York 10504, USA.

2. RELATED APPEALS AND INTERFERENCES

Appellant and the undersigned attorneys are not aware of any appeals or any interferences which will directly affect or be directly affected by or having a bearing on the Board's decision in the pending appeal.

3. STATUS OF CLAIMS

Claims 1, 2, 4-12 and 14-20 are currently pending in the application. Claims 1, 2, 4-12 and 15-19 stand finally rejected under 35 U.S.C. §103(a) as unpatentable over United States Patent 6,760,775 to Anerousis et al., in view of United States Patent 5,598,532 to Liron. Claims 14 and 19 stand finally rejected under 35 U.S.C. §103(a) as unpatentable over United States Patent 6,760,775 to Anerousis et al., in view of United States Patent 5,598,532 to Liron and in further view of United States Patent 6,078,946 to Johnson.

All pending claims are on appeal. See, the Appendix.

4. STATUS OF AMENDMENTS

All amendments have been entered.

5. SUMMARY OF CLAIMED SUBJECT MATTER

Regarding Claim 1:

The invention provides a method for allocating a service on a network having a plurality of interconnected nodes. The method includes collecting performance data representative of a set of physical characteristics of the network (S114, *see* page 6 lines 22-26) and identifying two or more node clusters (NC1, NC2, NC3) of the network based on the performance data (S116, *see* page 7 lines 5-10). In addition, the method includes correlating at least one property of each of the identified node clusters with at least one performance rule to determine a compliance of the node cluster to the performance rule and allocating the service to one of the complying node clusters (S118, see page 7 lines 20-28). (See also, FIG. 2B).

Regarding Claims 4 and 5:

The method may also include providing a map as a result of the correlation. In one example, the map includes a first cluster of the plurality of clusters for supporting the service on the network. In another example, the map includes at least one server within the first cluster of said plurality of clusters for supporting the service on the network (see page 7 line 23 to page 8 line 8). In another example, the method includes allocating the service to a first server of the at least one server (see page 8 lines 9-16). (See also, FIG. 2B).

Regarding Claims 9, 15 and 16:

The invention also provides a distributed computing system having a plurality of interconnected nodes and a server operable to allocate a service for the plurality of interconnected nodes. The server includes a probe (101) operable to provide a set of performance data (PD) as related to a set of physical characteristics of the plurality of interconnected nodes, a module (102) operable to identify a plurality of node clusters within a network in response to the set of performance data and an engine (103) operable to utilize at least one performance rule for the plurality of node clusters as related to the service to identify a first node cluster of the plurality of node clusters for supporting the service for the plurality of interconnected nodes. Additionally, the engine is further operable to provide a map representative of each node cluster in compliance with at least one performance rule as related to the service and to allocate the service to one of the complying node clusters (see, page 7 lines 23-28). (See also, FIGS. 2A to 3C).

6. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Were claims 1, 2, 4-12 and 15-19 properly rejected under 35 U.S.C. §103(a) as unpatentable over Anerousis et al., in view of Liron, and were claims 14 and 19 properly rejected under 35 U.S.C. §103(a) as unpatentable over United Anerousis et al., in view of Liron and in further view of Johnson?

7. ARGUMENTS

The Appellants respectfully traverse the obviousness rejections of claims 1, 2, 4-12 and 14-20, because the Examiner has failed to establish a *prima facie* case of obviousness as required by MPEP §2143.

Rejection of Claims 1, 2, 4-12 and 15-19:

Claims 1, 2, 4-12 and 15-19 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,760,775 to Anerousis ("the Anerousis Patent") in view of U.S. Patent No. 5,598,532 to Liron ("the Liron Patent"). This rejection is traversed. The Appellants have thoroughly considered the Examiner's remarks concerning the patentability of independent claims 1, 9, 15 and 16 over the Anerousis Patent in view of the Liron Patent. The Appellants have also thoroughly read these patents.

In order to make a *prima facie* case of obviousness under § 103(a), all of the *claimed* elements of the invention must be taught or suggested by the prior art (MPEP § 2143.03). Because the references, alone or in combination, do not disclose each and every element of the Appellants' invention, this rejection must fall.

The Anerousis Patent does not teach or suggest, at least, a method or system for allocating a service on a network as claimed. The Liron Patent also fails to teach or disclose at least, the same claim limitations, as correctly found by the Examiner. The Examiner references column 8 line 62 to col. 9 line 4 (reproduced below for convenience) as teaching allocating the service to one of the complying node clusters as recited in independent claims 1, 9, 15 and 16.

> As illustrated in FIG. **3**, connection requests for network services provided by a virtual host may be received in original data flow A. In one example of the operation of the second exemplary embodiment of the invention, the network service requests are identified at the borders of the AS **300**. The system-specific SLR cluster **310** at the input/output

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gateway of the AS **300** provides entry to a tunnel B across the AS **300** to a site-specific SLR cluster **320**. The site-specific SLR cluster **320** provides entry to a tunnel C to a host server **370** at the physical host site **330**. The site-specific SLR cluster **320** also terminates the tunnel B across the AS **300** to extract the enclosed datagrams. The host server **370** terminates the tunnel C and recovers the original datagram exactly as it was sent from the client or client' customer terminal **340**.

However, this citation merely discloses the flow of connection or service requests within a network. Nowhere in the Anerousis Patent does it teach or suggest the allocation of service to one of the complying node clusters as claimed by the Appellants in independent claims 1, 9, 15 and 16. The Anerousis Patent merely teaches a method and system for enabling a network and components of that network to be aware of services that already exist on that network (see Abstract). In fact, the Anerousis Patent does not address the problem solved by the Appellants' invention and shows a complete absence of the recognition of the problem of how best to allocate services among a network.

Furthermore, the Anerousis Patent teaches away from the invention as claimed by requiring that the service be present on the servers to which the service requests are routed (see Anerousis, col. 8 lines 20-31). Thus, the Anerousis Patent does not teach all of the limitations claimed by the Appellants. Further, the Anerousis Patent in combination with the Liron Patent does not teach or suggest the allocation of services to one of the complying node clusters as claimed by the Appellants. For at least these reasons, the rejection of independent claims 1, 9, 15 and 16 over the Anerousis Patent in view of the Liron Patent should fail.

Additionally, though, because the Anerousis Patent does not teach the allocation of services to one of the complying node clusters, the Anerousis Patent also does not teach collecting a set of performance data representative of a set of physical characteristics of the network, identifying a plurality of node clusters in response to said collection of said set of performance data and correlating at least one property of each of the identified node clusters with at least one performance rule to determine a compliance of the node cluster to the performance rule as recited in claims 1 and 15. The Examiner cites to col. 8 lines 17-45 (reproduced below) to teach these limitations.

> As shown in FIG. **3**, an AS **300** includes both a system-specific SLR cluster **310** specific to the AS **300** and a plurality of site-specific SLR clusters **320** each specific to physical host sites **330** within the AS **300**. The system-specific SLR cluster **310** receives network service requests from user terminals, e.g., user terminal **340**, coupled to the AS **300** through some type of network **350**, which may be the Internet. The system-specific SLR cluster **310** directs the network service request through routers **360** in the AS **300** to a site-specific SLR cluster **320**. This site-specific SLR cluster **320** is specific to a physical host site **330** that provides the requested network service. The physical host site **330** includes at least one host server **370** that supports the requested network service.
>
> The AS **300** also includes at least one other site-specific SLR cluster **325** specific to at least one other physical host site **335** that includes at least one host server **375** that also provides the request network service. The host servers **370**, **375** locally advertise the names of each of their virtual hosts to their respective site-specific SLR clusters **320**, **325**. The site-specific SLR clusters **320**, **325** then advertise the union of virtual hosts and their addresses to the system-specific SLR cluster **310** that acts as a gateway router of the AS **300**. The system-specific SLR cluster **310** advertises the union of virtual hosts and their addresses to entities outside the AS **300**, e.g., user terminal **340**. The system-specific SLR cluster **310** advertises the IP-addresses of the virtual hosts as its own.

However, the referenced material merely teaches a system of system-specific SLR clusters for directing service requests to a particular physical host site that was received from user terminals (see col. 8 lines 17-31). Thus, there are no teachings regarding collecting a set of performance data representative of a set of physical characteristics of the network, identifying a plurality of node clusters in response to said collection of said set of performance data and correlating at least one property of each of the identified node clusters with at least one performance rule to determine a compliance of the node cluster to the performance rule as recited in claims 1 and 15.

Regarding claims 4 and 5, the Anerousis patent alone or in combination with the Liron patent does not teach a method that is further defined wherein a map includes at least one server within a first cluster of said plurality of clusters for supporting the service on the network as recited in claim 4 or allocating the service to a first server of said at least one server as recited in claim 5.

Regarding claim 15, the Anerousis patent also fails to teach or suggest "means for collecting a set of performance data relating to a set of physical characteristics of a network; a means for identifying a plurality of node clusters in response to said set of performance data; a means for correlating at least one property of each of the identified node clusters with at least one performance rule to determine a compliance of the node cluster to the performance rule" as recited in claim 15. The Examiner cites to col. 8 lines 17-53 of the Anerousis patent (lines 45-53 reproduced below, lines 17-45 above) to teach or suggest these limitations.

> Routers **360** within the AS **300** receive route advertisements from multiple site-specific SLR clusters **320**, **325**, appearing as if there were multiple paths to the same virtual host. For each virtual host, the routing protocol selects one of these routes, thereby selecting a site-specific SLR cluster **320** or **325** where it will direct traffic to that virtual host. This selection may be performed based on a load, cost, or proximity metric or some other arbitrary criteria.

This citation is misguided. Nowhere within this citation, or the entirety of the Anerousis patent, are these limitations suggested. The Liron patent also fails to teach or

suggest these limitations, as correctly found by the Examiner. Therefore, the Anerousis patent alone or in combination with the Liron patent fails to teach or suggest all of the limitations of claim 15. For this additional reason, claim 15 is allowable over the cited art.

Regarding claim 16, the Anerousis patent fails to teach or suggest a server including a memory and a processor for allocating a service on a network having a plurality of interconnected nodes that includes "an engine operable to utilize at least one performance rule for said plurality of node clusters as related to the service to identify a first node cluster of said plurality of node clusters for supporting the service for the plurality of interconnected nodes, wherein the engine is further operable to provide a map representative of each node cluster in compliance with at least one performance rule as related to the service and to allocate the service to one of the complying node clusters" as claimed and described in the Appellants' specification. The Examiner cites to col. 8 lines 45-53 of the Anerousis patent (reproduced above) to teach or suggest this limitation. This citation is misguided. Nowhere within this citation, or the entirety of the Anerousis patent, is it taught that an engine utilizes performance rules of a service to identify a node cluster and create a map of the node cluster to which to allocate that service, as claimed by the Appellants. The Liron patent also fails to teach or suggest these limitations, as correctly found by the Examiner. Therefore, the Anerousis patent alone or in combination with the Liron patent fails to teach or suggest all of the limitations of claim 16. For this additional reason, claim 16 is allowable over the cited art.

Furthermore, claims 2 and 4-8 depend from independent claim 1 and include all of the elements and limitations of independent claim 1 and are allowable for at least the same reasons as stated above for claim 1. Claims 10-12 depend from independent claim 9 and include all of the elements and limitations of independent claim 9 and are allowable for at least the same reasons as stated above for claim 9. Claims 17-19 depend from independent claim 16 and include all of the elements and limitations of independent claim 16 and are allowable for at least the same reasons as stated above for claim 16.

It is therefore respectfully submitted by the Appellants that claims 2, 4-8, 10-12, and 17-19 are allowable over the Anerousis Patent in view of the Liron Patent for at least the same reason as set forth above with respect to independent claims 1, 9, 15 and 16. For

the above stated reasons, withdrawal of the rejection of claims 1,2, 4-12 and 15-19 under 35 U.S.C. §103(a) as being unpatentable over the Anerousis Patent in view of the Liron Patent is therefore respectfully requested.

Rejection of Claims 14 and 20:

The Appellants have thoroughly considered the Examiner's remarks concerning the patentability of claims 14 and 20 over Anerousis in view of Liron and in further view of Johnson. The Appellants respectfully traverse this 35 U.S.C. §103(a) rejection. The Appellants have also thoroughly read the Johnson Patent.

For at least the same reasons as stated above, the Appellants respectfully maintain that the Anerousis Patent does not teach or suggest all of the claimed elements of Appellants' invention. Additionally, Anerousis in combination with Liron and Johnson does not teach or suggest all of the claimed elements of Appellants' invention. Specifically, Johnson does not teach or suggest, at the least, identifying a plurality of node clusters as claimed by the Appellants in independent claims 9 and 16. Claim 14 depends from independent claim 9 and claim 20 depends from independent claim 16, both claims including all of the limitations of their respective independent claim. Thus, claims 14 and 20 are allowable over the Anerousis Patent in view of the Liron patent and in further view of the Johnson Patent for at least the same reasons as stated above for claims 9 and 16.

Furthermore, as the Examiner is well aware, where an independent claim is non-obvious, any claim depending therefrom is also non-obvious. *See*, MPEP 2143. Appellants, therefore, request the withdrawal of the rejection of dependent claims 14 and 20 under § 103(a).

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CONCLUSION

The Appellants respectfully submit that claims 1, 2, 4-12 and 14-20 fully satisfy the requirements of 35 U.S.C. §§102, 103 and 112. In view of the foregoing, favorable consideration and early passage to issue of the present application is respectfully requested.

Dated: **August 28, 2006**

Respectfully submitted,
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8. CLAIMS APPENDIX

1. A method for allocating a service on a network, said method comprising:

collecting a set of performance data representative of a set of physical characteristics of the network;

identifying a plurality of node clusters in response to said collection of said set of performance data;

correlating at least one property of each of the identified node clusters with at least one performance rule to determine a compliance of the node cluster to the performance rule; and

allocating the service to one of the complying node clusters.

2. The method of claim 1, further comprising:

providing a map as a result of said correlation, said map including a first cluster of said plurality of clusters for supporting the service on the network.

4. The method of claim 2,

wherein the map includes at least one server within a first cluster of said plurality of clusters for supporting the service on the network.

5. The method of claim 4, further comprising:

allocating the service to a first server of said at least one server.

6. The method of claim 1,

wherein collecting the set of performance data representative of the set of physical characteristics of the network comprises probing the network for a round trip time.

7. The method of claim 1,

wherein collecting the set of performance data representative of the set of physical characteristics of the network comprises probing the network for a hop count.

8. The method of claim 1,

wherein collecting the set of performance data representative of the set of physical characteristics of the network comprises probing the network for a bottleneck link speed.

9. A distributed computing system, comprising:

a plurality of interconnected nodes; and

a server operable to allocate a service for said plurality of interconnected nodes, said server including

a probe operable to provide a set of performance data as related to a set of physical characteristics of said plurality of interconnected nodes,

a module operable to identify a plurality of node clusters within a network in response to said set of performance data; and

an engine operable to utilize at least one performance rule for said plurality of node clusters as related to said service to identify a first node cluster of said plurality of node clusters for supporting said service for said plurality of interconnected nodes,

wherein the engine is further operable to provide a map representative of each node cluster in compliance with at least one performance rule as related to the service and to allocate the service to one of the complying node clusters.

10. The system of claim 9, wherein

a round trip time of said plurality of interconnected nodes is a first performance data of said set of performance data.

11. The system of claim 9, wherein

a hop count of said plurality of interconnected nodes is a first performance data of said set of performance data.

12. The system of claim 9, wherein

a bottleneck link speed of the plurality of interconnected nodes is a first performance data of said set of performance data.

14. The system of claim 9, wherein

said module is a neural network.

15. A computer program product in a computer readable medium for allocating a service on a network, comprising:

a means for collecting a set of performance data relating to a set of physical characteristics of a network;

a means for identifying a plurality of node clusters in response to said set of performance data;

a means for correlating at least one property of each of the identified node clusters with at least one performance rule to determine a compliance of the node cluster to the performance rule; and

a means for allocating the service to one of the complying node clusters.

16. A server including a memory and a processor for allocating a service on a network having a plurality of interconnected nodes, comprising:

a probe operable to provide at least one performance data as related to a set of physical characteristics of the plurality of interconnected nodes,

a module operable to provide a plurality of node clusters of the network in response to said set of performance data; and

an engine operable to utilize at least one performance rule for said plurality of node clusters as related to the service to identify a first node cluster of said plurality of node clusters for supporting the service for the plurality of interconnected nodes,

wherein the engine is further operable to provide a map representative of each node cluster in compliance with at least one performance rule as related to the service and to allocate the service to one of the complying node clusters.

17. The server of claim 16, wherein

a round trip time of the plurality of interconnected nodes is a first performance data of said set of performance data.

18. The server of claim 16, wherein

a hop count of the plurality of interconnected nodes is a first performance data of said set of performance data.

19. The server of claim 16, wherein

a bottleneck link speed of the plurality of interconnected nodes is a first performance data of said set of performance data.

20. The server of claim 16, wherein

said module is a neural network.

9. EVIDENCE APPENDIX

Appellants entered no evidence pursuant to §1.130, 1.131 or 1.132, and the Examiner entered no evidence that was relied upon by Appellants.

10. RELATED PROCEEDINGS APPENDIX

There are no copies of related decisions or proceedings.